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whereby when said locking pin extends through said aperture, through said opening in said inner ring, and engages said engagement means, said locking pin couples said coupling device to said housing.--

--17. (New) The improved trailer hitching apparatus of Claim 12, further comprising a plurality of connected guide walls operatively associated with said housing and converging forwardly about said opening.

#### REMARKS

Claims 1-3 and 6-10 have been amended, and new Claims 11-17 have been added. No claims have been canceled. Applicant requests reexamination and reconsideration of the application as amended.

#### ***Summary of Amendments to Specification***

The specification has been amended to recite that the four guide walls **20, 22, 24,** and **26** converge *forwardly*, rather than rearward, into an opening of the housing. Support for this amendment is found in the drawings as originally filed and is made in accordance with the Examiner's direction.

The specification has also been amended to recite that the housing is part spherical in shape. The Examiner has previously objected to the applicant's use of "hemispherical" on the grounds that the specification does not teach exactly half a sphere. However, it is also clear that the drawings do not show a housing which is a complete sphere. If the housing were a

complete sphere, there would be no opening for the hitch to enter. Applicant adopts the Examiner's characterization of the housing as being a "part spherical" housing, and the specification has been amended accordingly.

Finally, the specification has been amended to correct an obvious error, where the word "extruding" was used in place of the word "protruding" or "extending." The word "extruding" has now been changed to "extending."

### ***Summary of Amendments to Claims***

Claim 1 has been amended to recite that the four guide walls converge *forwardly*, rather than rearward, into an opening of the housing. Support for this amendment is found in the drawings as originally filed and is made in accordance with the Examiner's direction.

Claim 2 has been amended to recite a rectangular hitch socket for mounting to a towing vehicle. Claim 2 has further been amended to recite the addition of a rectangular forward portion configured to engage the rectangular hitch socket. Support for these amendments is found in the specification and drawings as originally filed, *e.g.*, element 2 in FIGS. 1 and 5, and in the specification at col. 1, lines 15–17. Claim 2 has also been amended to recite first and second wall *portions*, in view of the Examiner's objection that a sphere has only one "wall" such that first and second "walls" is improper. While applicant disagrees with the Examiner's characterization (*e.g.*, a dome-shaped room has a "ceiling," despite the fact that it may be difficult to determine where the "walls" end and the "ceiling" begins), the amendment to recite first and second wall *portions* is appropriate, since even a spherical wall can have "portions."

Claim 3 has been amended to recite “wall portions” for consistency with Claim 2.

Claims 6–8 have been amended to correct references to a “spherical” housing, either by amending the claim to recite a “part spherical” housing, or to simply delete the word “spherical” where the housing has already elsewhere been referred to as “part spherical.”

Claim 9 has been amended to correct an inconsistency with Claim 2. More specifically, “coupling device” has been amended to “coupler device.”

Claim 10 has been amended to recite that the walls converge “forwardly,” instead of “rearward.”

### ***Summary of New Claims***

Claim 11 is similar to Claim 2 as amended but does not recite the rectangular hitch socket or the shaft for engaging the shift socket. Instead, Claim 2 recites the housing as “having a horizontal cross-section substantially in the shape of a partial circle.” Claims 12–17 dependent from Claim 11 correspond generally to some of dependent claims 3–10.

### ***Requirement to Surrender Original Patent***

Applicant acknowledges the requirement of 37 CFR 1.178 that the original patent, or an affidavit or declaration as to loss or inaccessibility of the original patent, must be received before this reissue application can be allowed. The patentee is presently trying to locate the original patent, and it will be surrendered shortly.

***“Indefiniteness” Rejections Under 35 U.S.C. § 112, Second Paragraph***

The Examiner has required clarification regarding the language of Claims 1 and 10. In particular, the Examiner objects to the term “converge rearwardly,” stating that it would appear that in an operative position, such walls actually converge forwardly. Patentee points out that the term “converge rearwardly” is consistent with the language used in the specification at column 3, line 19. Consequently, amendment of Claims 1 and 10 to comply with the Examiner’s requirements also requires an amendment to this portion of the specification. Claims 1 and 10 have now been amended to clarify this term, and a new paragraph of the specification has been substituted to change the word in accordance with the Examiner’s wishes.

The Examiner has rejected Claim 6 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, in claim 6, the term “said spherical housing” lacks antecedent basis in the claim(s). Claim 6 has now been amended to delete the word “spherical,” and a rejection based upon lack of antecedent basis is now moot.

***“New Matter” Rejections Under 35 U.S.C. § 251***

The Examiner has rejected Claims 1–10 under 35 U.S.C. 251 as being based upon new matter added to the patent for which reissue is sought. According to the Examiner, the limitations concerning the first and second walls in opposed, spaced apart relation and the housing being hemispherical are not supported by the prior patent. According to the rejection, the application as originally filed provided a part spherical housing, which provides

but a single wall. Furthermore, while the original disclosure set forth “spherical” denoting the housing having a portion of sphere shape, there is no basis as originally filed for “hemispherical”, which denotes exactly one half of a sphere.

The application has now been amended to recite “first and second wall *portions* in opposed, spaced apart relation.” Irrespective of the Examiner’s contention that a “sphere” (which, as previously explained, the housing is not) has but one wall, even a single wall can have first and second “wall portions.” The Examiner’s rejection that the terms “first and second walls in opposed, spaced apart relation” constitutes new matter is therefore moot.

The Examiner’s has objected to the term “hemispherical” as constituting new matter, stating that the housing as described in the patent as originally issued is not exactly half a sphere and thus is not hemispherical. While the patent as originally issued did indeed use the term “spherical,” it is clear from the drawings (see, *e.g.*, FIG. 5) that the housing is not a complete sphere. In fact, if it were a complete sphere, there would be no way for the coupler device to enter the housing. While applicant submits that the drawings do clearly show the housing as being “hemispherical,” applicant adopts the examiner’s characterization of the housing as being “part spherical” as being an accurate term for describing the shape of the housing, and the “new matter” rejection is believed overcome.

***“Non-Enablement” Rejections Under 35 U.S.C. § 112, First Paragraph***

The Examiner has rejected Claims 1–10 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to

make and/or use the invention. More specifically, it is the Examiner's contention that the invention as now claimed, in particular the term "converge rearwardly," finds no support in the disclosure as originally filed.

As previously discussed, the disclosure as originally filed did include support in the specification as originally filed for the term "converge rearwardly," specifically at column 3, line 19. However, in the interest of addressing the Examiner's concerns, both the claims and the specification have been amended to recite that the walls "converge forwardly." The Examiner's rejection is therefore moot.

***"Anticipation" Rejections Under 35 U.S.C §102(b)***

Claims 2-6 and 9

The Examiner has rejected Claims 2-6 and 9 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,585,133 to Cope. According to the Examiner, *Cope* teaches the claimed invention, including:

inner and outer annulus 32 and 34;

housing 20 which is attached to a towing vehicle and which has upper and lower spaced walls as claimed;

means 18 attached to the outer ring/annulus for attachment to a towed trailer;  
and

a locking pin 30 operative as claimed.

Claim 2 has now been amended to add a rectangular hitch socket for mounting to a towing vehicle, and further recites a shaft having a rearward portion operatively connected to the first and second wall portions and having a rectangular forward portion configured to

engage the rectangular hitch socket for mounting the apparatus to a towing vehicle. The apparatus of *Cope* is formed integrally with a truck specifically adapted for towing trailers. There is no teaching or suggestion in *Cope* as to how the disclosed hitch arrangement could be adapted as a self-contained unit and mounted to a towing vehicle not especially intended for towing trailers. Claim 2 and Claims 3–6 and 9 dependent therefrom are therefore believed allowable.

In addition, new Claims 11–17 are also distinguishable over *Cope*. *Cope* does not disclose a housing which has a horizontal cross-section in the shape of a partial circle. The partial circular shape is believed to offer advantages over the hitch arrangement of *Cope* in that it more effectively guides the coupler device into alignment with the hitch pin. Since *Cope* fails to disclose such an arrangement, Claims 11–17 are believed allowable.

#### Claim 5

Regarding Claim 5, in figure 3 of *Cope*, the Examiner contends that the inner surface of the housing at the forward end exhibits curved portions. Without debating whether the forward end of the *Cope* device is curved, the *Cope* device does not disclose a rectangular hitch socket and a shaft for engaging the rectangular hitch socket, as recited in Claim 2 from which Claim 5 depends. Claim 5 is therefore believed allowable.

#### Claim 6

Regarding Claim 6, the Examiner has not accorded any weight to the term “said spherical housing” in the claim, as it is believed it was Applicant’s intention that this

limitation not be present within this claim. The Examiner states that the term “same general curvature” fails to define any specific structure and/or arrangement so as to define over the apparent rounded edges of the coupler of *Cope*.

The housing of the claims as amended is defined as “part spherical,” a term used by the Examiner. The “same general curvature” thus refers to a curvature which is “part spherical,” a feature clearly not shown by *Cope*. Claim 6 is therefore believed allowable.

#### Claim 9

It is the Examiner’s position that the term “engagement means” fails to define any specific structure and/or arrangement so as to define over the second aperture of the housing. Applicant respectfully traverses the rejection. A claim limitation expressed in terms of a “means plus function” is construed to mean what is disclosed in the specification and structural equivalents.” To the extent that there are structures which are the “structural equivalent” of a second aperture, the recited structure *does* define over the second aperture of the housing. The Examiner’s rejection should be withdrawn.

#### ***“Obviousness” Rejections Under 35 U.S.C §103(a)***

The Examiner has rejected Claim 10 under 35 U.S.C. 103(a) as being unpatentable over *Cope* as applied to Claim 3 above, and further in view of U.S. Patent No. 4,560,184 to Williams, Jr. According to the Examiner, *Cope* fails to disclose guide walls as claimed, but *Williams, Jr.* teaches guide walls 120. According to the rejection, it would have been obvious



to one of ordinary skill in the art at the time of the invention to provide guide walls to *Cope* to facilitate connection as taught by *Williams, Jr.*

However, Williams, Jr. does not supply the missing teachings of Claim 2, namely, a rectangular hitch socket for mounting to a towing vehicle, a rectangular bar for mounting the hitch assembly to a towing vehicle, and a method for making the suggested combination. Claim 10 is therefore believed allowable.

A request for a two-month extension of time for filing a response, together with the fee required by 37 C.F.R. 1.17(a)(2), is enclosed. The time for filing a response is thereby extended to September 25, 2002. Since September 25, 2002 falls on a Sunday, the foregoing response, filed the following Monday, September 26, 2002, is timely filed.

The foregoing is believed to be fully responsive to the Office Action dated March 25, 2002. For the reasons set forth above, the present application is believed to be in condition for allowance. Reexamination and reconsideration of the application is requested, and allowance of the claims at an early date is courteously solicited.

Respectfully submitted:

  
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**MARKED-UP VERSION OF REPLACEMENT PARAGRAPHS TO  
SPECIFICATION (37 C.F.R. § 1.121(b)(1)(iii))**

Pursuant to 37 C.F.R. § 1.121(b)(1)(iii), another version of the rewritten claims, marked up to show all the changes relative to the previous version of the claims, is now set forth, with deleted text shown in [brackets] and added text shown by underlining.

Please delete the paragraph which appears at column 2, lines 20–27 of the specification, and replace it with the following paragraph:

An object of the present invention is to provide a new self-aligning and self-connecting double ring coupler hitch assembly between a towing vehicle and a towed trailer incorporating a simple flanged structure for guiding a double ring coupler smoothly into a housing where it is locked into place with a coupler pin which falls, with the use of gravity, vertically downward through the part spherical housing and the double ring coupler.

Please delete the paragraph which appears at column 2, lines 37–45 of the specification, and replace it with the following paragraph:

Another object of the invention is to provide a hitch in accordance with the preceding objects in which the trailer hitch component consists of a double ring coupling assembly in which the outer ring moves three dimensionally about a fixed inner ring, and which also moves three dimensionally within a part spherical housing component, thus allowing maximum movement of the

trailer tongue and towed trailer vertically and horizontally within a continuous plane in relation to the rear of the towing vehicle.

Please delete the paragraph which appears at column 2, lines 60–62 of the specification, and replace it with the following paragraph:

FIG. 5 is a sectional view illustrating the engagement of the double ring coupler within the part spherical housing with the inner ring locked in place by the coupler pin.

Please delete the paragraph which appears at column 2, lines 63–67 of the specification, and replace it with the following paragraph:

FIG. 6 is a perspective view illustrating the freedom of three dimensional movement of the double ring coupler shaft within the part spherical housing and about the inner ring, thus resulting in maximum horizontal, vertical and rotational movement of the trailer tongue and hence trailer.

**MARKED-UP VERSION OF REPLACEMENT SECTION OF SPECIFICATION  
(37 C.F.R. § 1.121(b)(2)(iii))**

Pursuant to 37 C.F.R. § 1.121(b)(1)(iii), another version of the rewritten claims, marked up to show all the changes relative to the previous version of the claims, is now set forth, with deleted text shown in [brackets] and added text shown by underlining.

Please delete the section entitled "DESCRIPTION OF THE PREFERRED EMBODIMENT" which appears at column 3, line 1, through col. 4, line 21 of the specification, and replace it with the following replacement section:

**DESCRIPTION OF THE PREFERRED EMBODIMENT**

The double ring hitch assembly is comprised of the coupler guide which is generally designated by reference 16, and the double ring coupler hitch, which is generally designated by reference 18. FIG. 1 is an exploded perspective view of the coupler guide 16 and the double ring coupler 18 and illustrates their structural relationship. The coupler guide 16 consists of a hollowed part spherical housing 6 having opposite entrance holes 8 being vertically aligned to allow for the insertion of a locking pin 12. [the] The locking pin 12 is shown as "T" shaped with a handle grip 10, but is not limited to this shape. It has a hole 14 at its base for insertion of a locking pin. Extruding horizontally from the part spherical housing 6 is a rectangular shaft 2 which inserts into the interior channel of a class 2 or class 3 towing vehicle hitch. The coupler guide 16 has four guide walls 20, 22, 24 and 26 which converge rearwardly into a circular opening of the part spherical housing 6. The preferred embodiment

shows the outer perimeter formed by these four guide walls 20, 22, 24 and 26 as rectangular in shape, but the present invention is not limited to said rectangular shape.

The double ring coupler hitch is illustrated in more detail in FIGS. 2, 3 and 4. It is comprised of an annulus shaped outer ring 30 whose exterior surface 34 [is spherically shaped, *i.e.*, with] has the same convex curvature as the interior concave curvature of the part spherical housing 6. The outer ring 30 has a circular hole 36 cut through its center so that the interior surface 38 of the outer ring 30 is also concavely curved as the section of a sphere. The inner ring 40 is also annulus shaped with a convexly curved outer surface 42 with the same [spherical] curvature as the convex inner surface 38 of the outer ring 30. The inner ring 40 has a hole 46 cut through its center for insertion of the coupler pin 10 between the hole 46 and the outer surface 42. The inner ring 40 has a level lip 44 on both sides. The inner ring 40 fits within the outer ring 30 as illustrated in FIGS. 2, 3 and 4. The concave inner surface 38 of the outer ring 30 covers the outer surface 42 of the inner ring 40 enough to prevent the inner ring 40 from being removed.

The outer ring 30 has a cylindrical shaft 32 which extends horizontally from its outer surface 34 into a hitch box 48. The hitch box 48 has drilled holes for attachment to a trailer hitch tongue. The relative shapes of the inner ring 40 and outer ring 30 are structurally parallel such that the outer ring 30 can rotate about the inner ring 40 360 degrees about any axis, vertical, horizontal or continuously in between.

When mounted to the rear of a towing vehicle, the coupler guide 16 extends perpendicularly from the rear of the towing vehicle which is slowly backed toward the towed

vehicle. The double ring coupler assembly 18 extends perpendicularly from the front of the towed vehicle. When the outer ring 30 comes in contact with the inside of one of the four coupler guide walls 20, 22, 24 or 26, the double ring coupler 18 is guided along the inside of the coupler guide walls 20, 22, 24 and 26 which converge and guide the double ring coupler 18 into the part spherical housing 6. Once engaged, the coupler pin 10 falls through the hole 8 in the part spherical housing 6 and through the hole 46 of the inner ring 40. The inner ring 40 is then locked in place except that it may rotate in either direction about the vertical axis of the locking pin 10. Once so engaged and locked, FIG. 6 illustrates the operational association between the double ring hitch 18 and the coupler guide 16. With the locking pin 10 in place, the double ring hitch 18 is allowed to rotate three dimensionally about the inner ring 40 and within the part spherical housing 6 continuously anywhere within the physical boundaries defined by the coupler guide walls 20, 22, 24 and 26. The relative shapes of the inner ring 40, the outer ring 30, and the part spherical housing 6 provide a means by which the towed trailer has substantially more freedom of movement both vertically and horizontally relative to the towing vehicle than has been produced or allowed by any prior art.

**MARKED-UP VERSION OF CLAIMS (37 C.F.R. § 1.121(c)(1)(ii))**

Pursuant to 37 C.F.R. § 1.121(c)(1)(ii), another version of the rewritten claims, marked up to show all the changes relative to the previous version of the claims, is now set forth, with deleted text shown in [brackets] and added text shown by underlining:

1. (Once Amended) An improved trailer hitching apparatus comprising:

a plurality of connected guide walls which converge [rearwardly] forwardly into a [substantially hemispherical] housing shaped like a portion of a sphere and having a substantially circular opening into said housing where said guide walls converge;

means attached to said housing for mounting said apparatus to a towing vehicle;

a double-ring coupler device having two substantially annulus-shaped rings, formed so that one outer ring houses the other inner ring as follows: the outer convex surface of said inner ring has the same curvature shape as the inner concave surface of said outer ring, with said outer ring somewhat overlapping said inner ring to hold them together operationally, allowing said outer ring to rotate freely on any axis about said inner ring;

a shaft attached to said outer ring having means to attach said coupler device to a trailer tongue;



said housing having an inner surface with the same curvature as the outer surface of said outer ring so that said outer ring can rotate freely and smoothly about any axis within said housing;

said housing having circular surface openings situated opposite each other and said inner ring of said coupler device having a circular hole which aligns with said surface openings as means for insertion of a locking pin device to securely engage said double-ring coupler device within said housing.

2. (Once Amended) An improved trailer hitching apparatus comprising:

a rectangular hitch socket for mounting to a towing vehicle;

first and second [walls] wall portions in opposed, spaced apart relation;

[means attached] a shaft having a rearward portion operatively

connected to said first and second [walls] wall portions and having a

rectangular forward portion configured to engage said rectangular

hitch socket for mounting said apparatus to a towing vehicle;

an outer, substantially annulus-shaped ring having inner walls defining

an opening, said inner walls having a concave configuration, said

outer ring being configured to be received between said opposed first

and second [walls] wall portions;

an inner, substantially annulus-shaped ring, said inner ring having an opening and an outer convex surface, said inner ring being positioned within said opening of said outer ring, said outer convex surface of said inner ring having substantially the same curvature as said inner concave walls of said outer ring, and said outer ring somewhat overlapping said inner ring to hold them together operationally such that said outer ring can rotate freely on any axis about said inner ring, said inner and outer rings together forming a coupler device;

means attached to said outer ring for attaching said coupler device to a trailer; and

a locking pin operatively associated with said opposed first and second [walls] wall portions and configured to be received through said opening in said inner ring when said [coupling] coupler device is disposed between said opposed first and second [walls] wall portions so as to couple said [coupling] coupler device to said means for mounting said apparatus to a towing vehicle.

3. (Once Amended) The trailer hitching apparatus of Claim 2, further comprising a housing, wherein said housing includes an opening configured to receive an end of said coupler device therethrough, and wherein said first and second [walls] wall portions comprise opposed walls of said housing.

6. (Once Amended) The trailer hitching apparatus of Claim 5, wherein said outer ring has an outer convex surface with the same general curvature as the curved inner surface of said housing such that said outer ring can rotate freely and smoothly about any axis within said [spherical] housing.-

7. (Once Amended) The trailer hitching apparatus of Claim 3, wherein said housing is [substantially hemispherical] part spherical in shape, and wherein said opening is substantially circular in shape.--

8. (Once Amended) The trailer hitching apparatus of Claim 7, wherein said housing has a [substantially hemispherical] part spherical inner surface, and wherein said outer ring has an outer convex surface with the same general curvature as the inner surface of said housing such that said outer ring can rotate freely and smoothly about any axis within said part spherical housing.

9 (Once Amended) The trailer hitching apparatus of Claim 3, wherein said housing comprises an aperture therethrough through which an end of said locking pin is inserted, and wherein said housing comprises an engagement means situated opposite said aperture for engaging said end of said locking pin;

whereby when said locking pin extends through said aperture, through said opening in said inner ring, and engages said engagement means, said locking pin couples said [coupling] coupler device to said housing.

10. (Once Amended) The improved trailer hitching apparatus of Claim 3, further comprising a plurality of connected guide walls operatively associated with said housing and converging [rearward] forwardly about said opening.